



## *Short Communication*

### **Measles Outbreak at a Brickfield of Hooghly, West Bengal**

**Pranab Jyoti Bhuyan\*, Ketaki Sharma\*\*, Rajarshi Chakraborty\*\***

#### **Abstract:**

Measles is a global public health problem with higher case fatality especially in hard to reach area i.e. brickfield. An outbreak of measles was investigated at a brickfield of Hooghly, West Bengal to find out the probable epidemiological factors. The Epidemic Response Team (ERT) investigated the outbreak and an unmatched case control study was conducted. The children of migrant labourers belonging to the neighbouring states of Jharkhand, Uttar Pradesh, Bihar and Chhattisgarh constituted the majority of population. They belonged to lower socio economic status and had low measles immunization coverage .75% children were in the age group of 1–4 years, cases mostly occurred with history of close contact (OR: 2.2). Majority of children (57-59%) were unimmunized for measles and the detection of outbreak was late in the existing surveillance system. Strengthening of surveillance system as well as catch up immunization is mandatory to achieve disease control in these high risk areas.

**Key words:** Epidemic Response Team (ERT), Measles, Disease surveillance.

#### **Introduction:**

Measles is a global public health problem with variable incidence. The World Health Assembly in 1998 resolved to reduce measles morbidity and mortality by 90% and 95% respectively.<sup>1</sup> Measles is a serious childhood disease in India, with a median case fatality ratio (CFR) of 2.5%, which increases considerably during the outbreak.<sup>2</sup>

**\*Public Health Specialist, All India Institute of Hygiene & Public Health, Kolkata.**

**\*\* Medical Officer, All India Institute of Hygiene & Public Health, Kolkata.**

**Corresponding Author: Dr. Pranab Jyoti Bhuyan,**

**Email: pranabjyoti333@rediffmail.com**

The Rural Health Unit & Training Centre (RHU&TC), Singur, Hooghly, is the field practice area of All India Institute of Hygiene & Public Health, Kolkata. It has two Union Health Centres (PHC) and twelve functional subcentre units which serve around one lakh population. In this service area there are 24 brickfields and all the workers are migrant labourers from the neighbouring states like - Bihar, Jharkhand, Chhattisgarh and Uttar Pradesh living in thickly populated area in single room with improper ventilation.

On 9<sup>th</sup> January 2015, the Rural Health Unit & Training Centre received a report from the Nasibpur Union Health Centre ( NUHC) regarding two suspected measles cases among children from Prasadi brickfield. An Epidemic Response Team consisting of Public Health Professionals from WHO, Rural Health Unit Training Centre, Singur and District Health officials, Hooghly visited the area. The Surveillance Medical Officer (WHO) was actively involved in training and logistic of the Epidemic Response Team (ERT) and the team started line listing of all the suspected measles cases.

### **Methodology:**

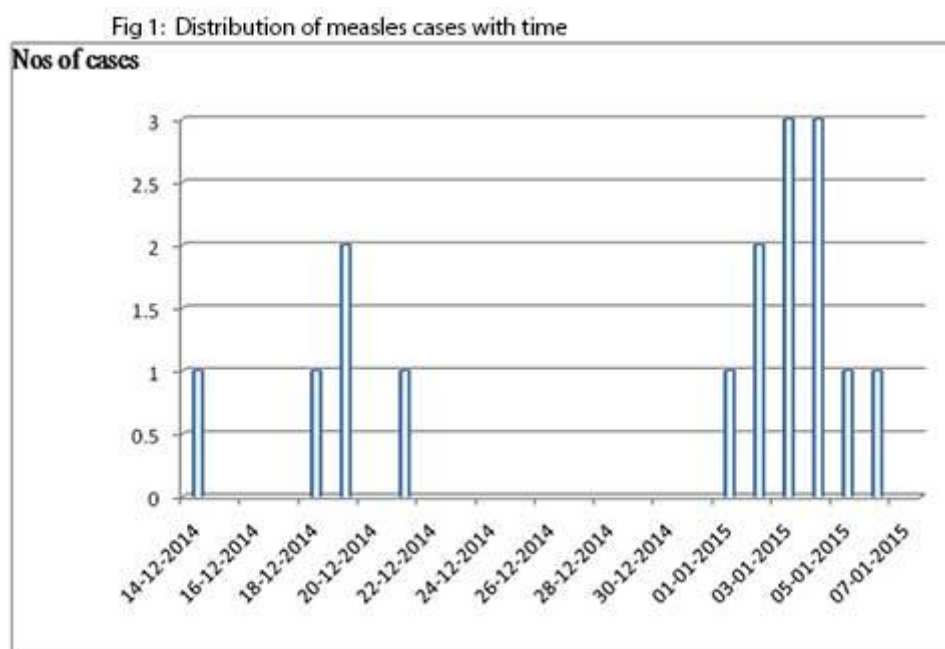
A descriptive and unmatched case–control study was conducted to describe the epidemiological characteristics and to determine the associated risk factors of measles outbreak. The household survey was carried out by a specially trained team of doctors, public health nurse, health assistant and health workers using two predesigned and pretested proformae. The first proforma contained socio demographic data about family, age, sex, immunization status of children and presence of any suspected measles case. The second proforma was used for line listing of measles cases containing patient characteristics including clinical and outcome details. The operational case definition of measles was “ Any child of 8 months to 5 yrs old residing in Prasadi brickfield area and suffering from acute onset of fever with maculopapular rash lasting more than 3 days and cough or coryza or conjunctivitis with onset after 14<sup>th</sup> December,2014”.

The criteria used to declare it as outbreak<sup>3</sup> was “Five or more clinical cases of measles in a block in a week”. During the survey, all the cases were provided with two doses of Vitamin A at the interval of 24 hrs and blood samples were collected from five cases for detection of measles specific IgM antibody as per WHO protocol.<sup>3</sup> The line listing was continued for

further four weeks since the last case. The children of those dwellings belonging to the same age group without the above symptoms were considered as controls and risk factors were compared with the cases.

## Results:

During the investigation, 16 cases were detected, of which 12 (75%) was in the age group of 1–4 years with M: F ratio 1.2: 1. **Figure 1**



shows that the first case occurred on 14<sup>th</sup> December, 2014 and the outbreak had two peaks- 18<sup>th</sup>-22<sup>nd</sup> December, 2014 and 1<sup>st</sup> -7<sup>th</sup> January, 2015 suggesting a propagated epidemic. Of the five blood samples collected for measles specific IgM antibody, all were found to be positive for measles. The results of the case–control study of 16 cases and 18 controls revealed chances of developing measles with history of close contact (within 2-3 houses ) of a measles case had a strong association ( OR 2.2) as compared to occasional contact /distant houses. The attack rate among unvaccinated children was 28.7%. All children among cases and control groups were susceptible to measles as they had almost same measles vaccine coverage (Case-41%, Control-43%). Moreover, overcrowding and low socioeconomic conditions were common characteristics to all of them. Clinical characteristics of measles cases are shown in Table 1. Fever and rash were present in all cases. Measles related complications were present in 18.7% of the cases.

**Table. 1:-Clinical Characteristics of Measles Cases**

Symptoms	Number (n=16)	Percentage
Fever	16	100
Rash	16	100
Cough	11	68.7
Running nose	9	56.2
Red Eye	12	75
<b>Complications</b>		
Diarrhoea/	3	18.7
Pneumonia	2	
Others	Nil	

**Containment measure:**

A catch up immunization week was conducted during the outbreak. Health education regarding measles and measles related complications i.e. diarrhoea, pneumonia and otitis media were imparted to the inhabitants of these areas by the ERT.

**Recommendation:** The brickfield should be given special attention in the Special Immunization Week to catch up the immunization coverage. A separate health team should be formed for effective surveillance in brickfield to detect the outbreak in time.

**Conclusion:**

The AFP surveillance system, with its strong field network and technical collaboration, seems to be a reliable medium to implement measles surveillance throughout such high risk area and to fulfil measles related goals of Government of India.

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